FIG. 1

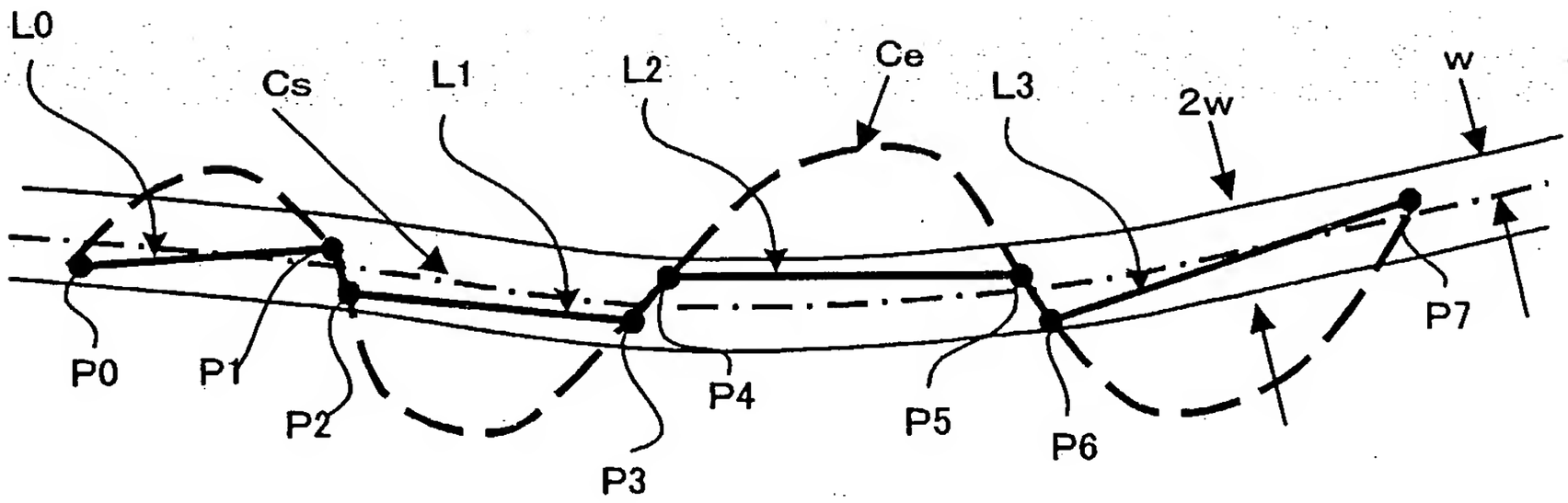


FIG. 2

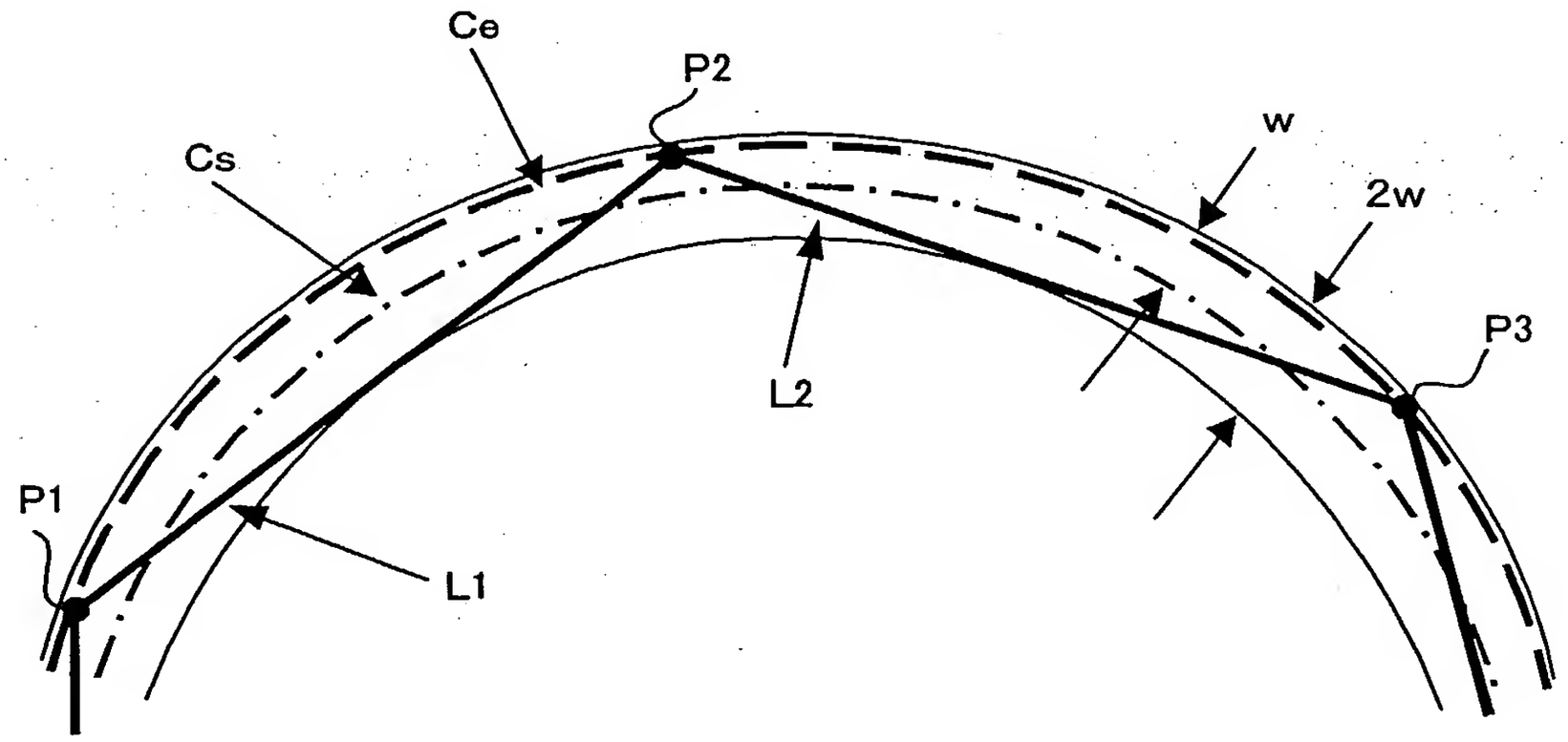


FIG. 3

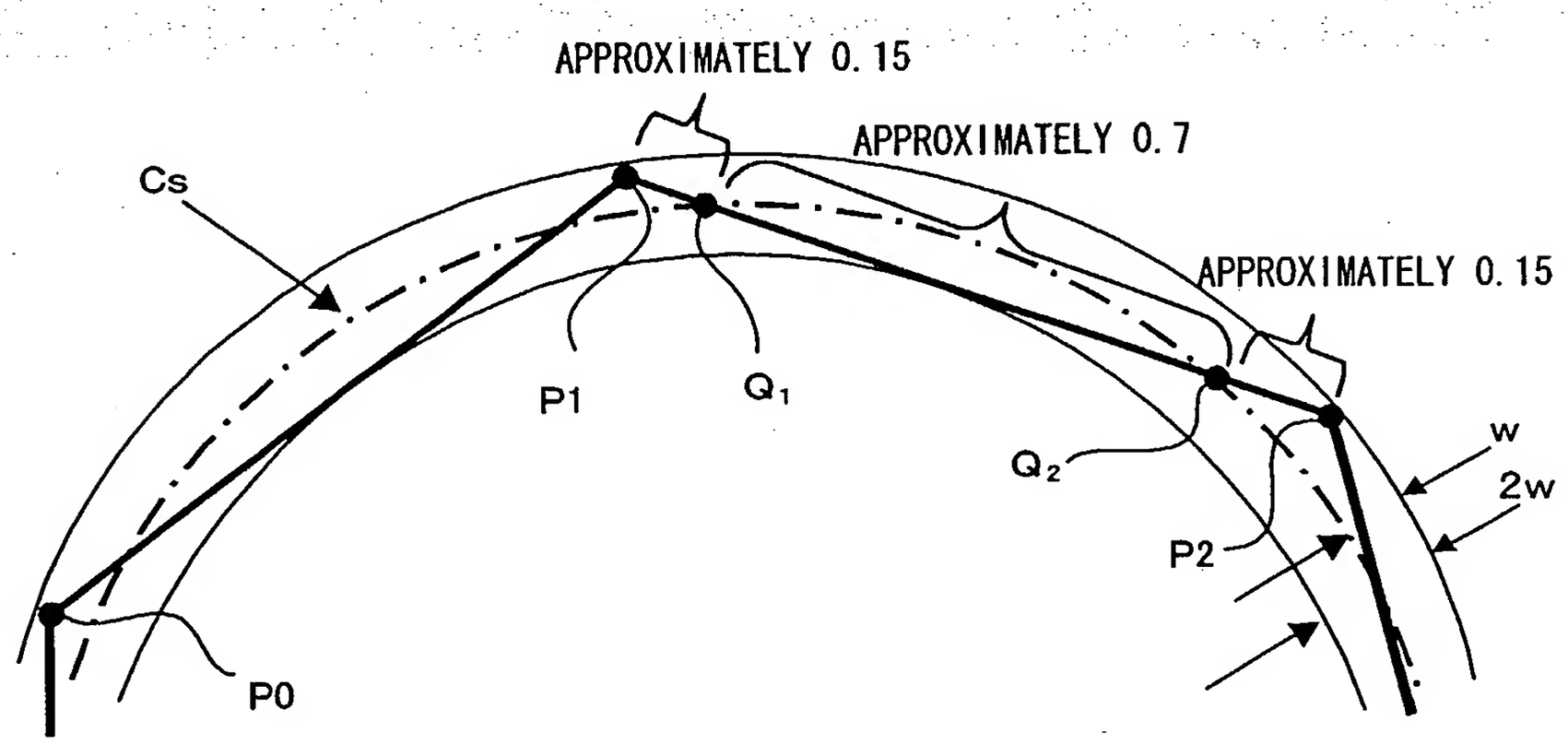


FIG. 4

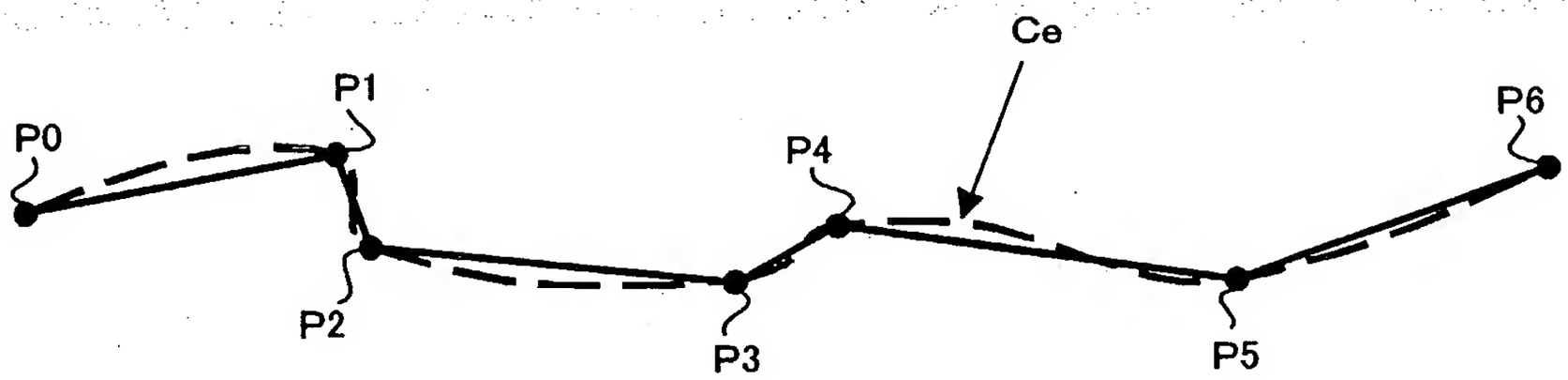


FIG. 5

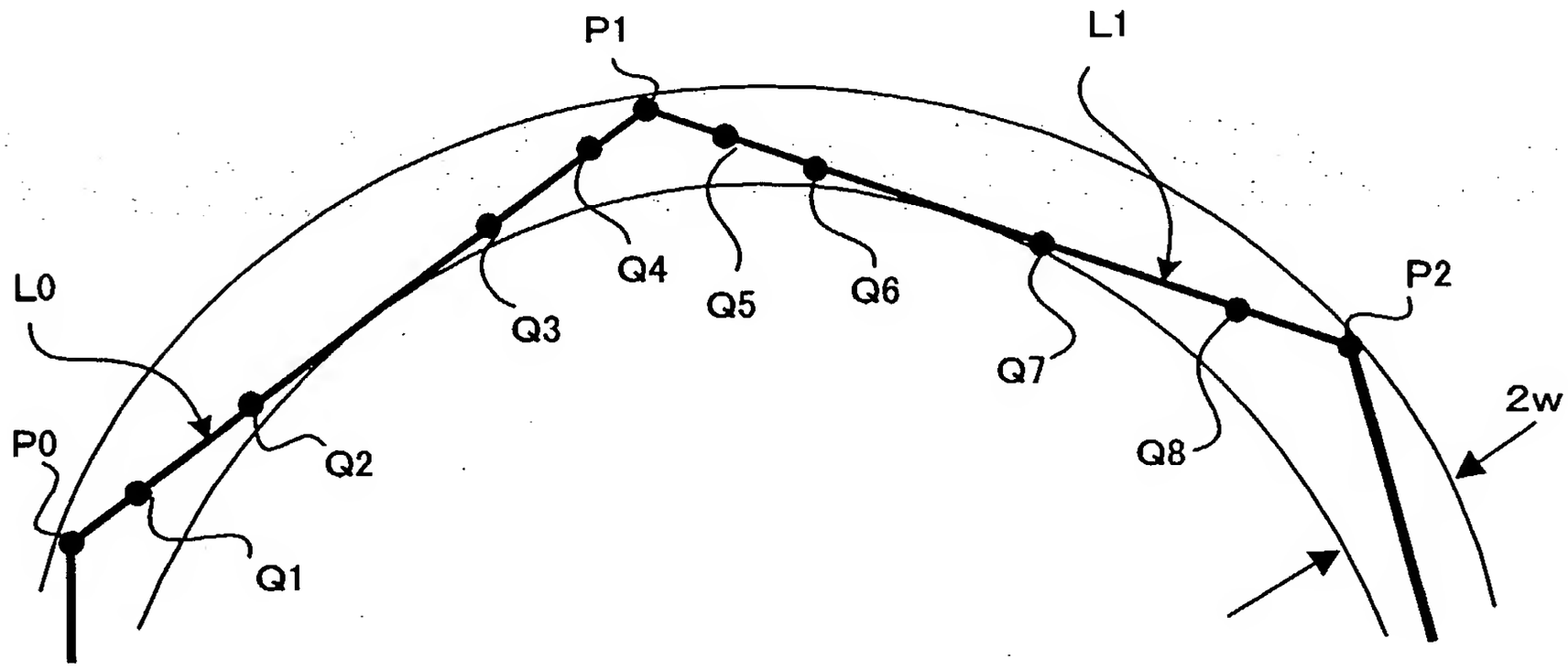


FIG. 6

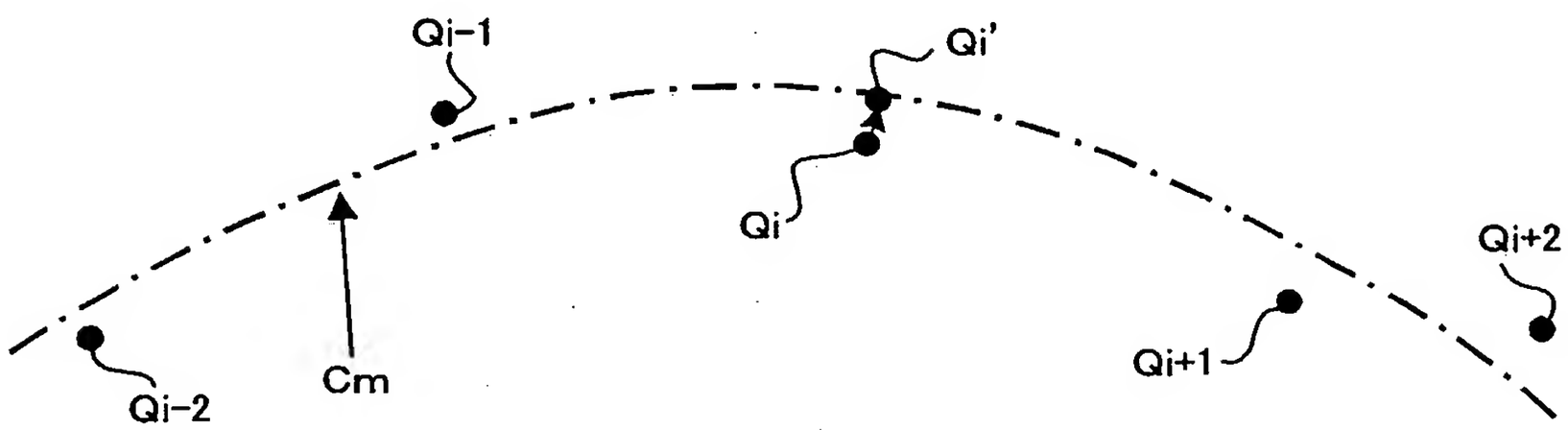


FIG. 7

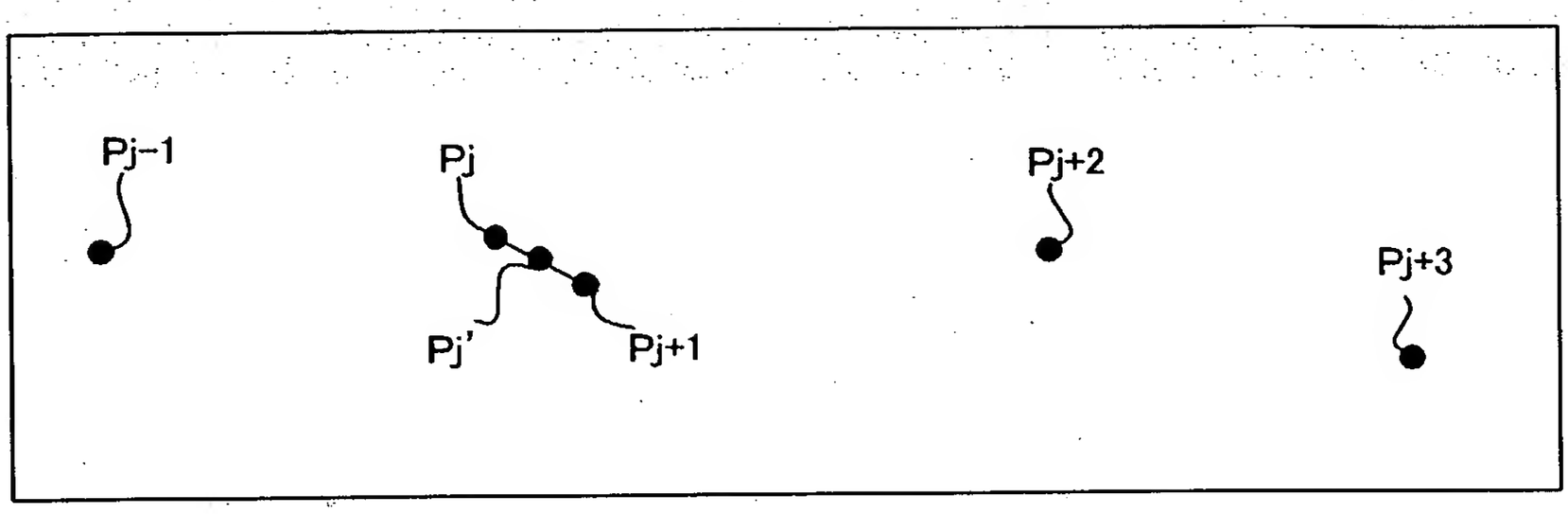


FIG. 8

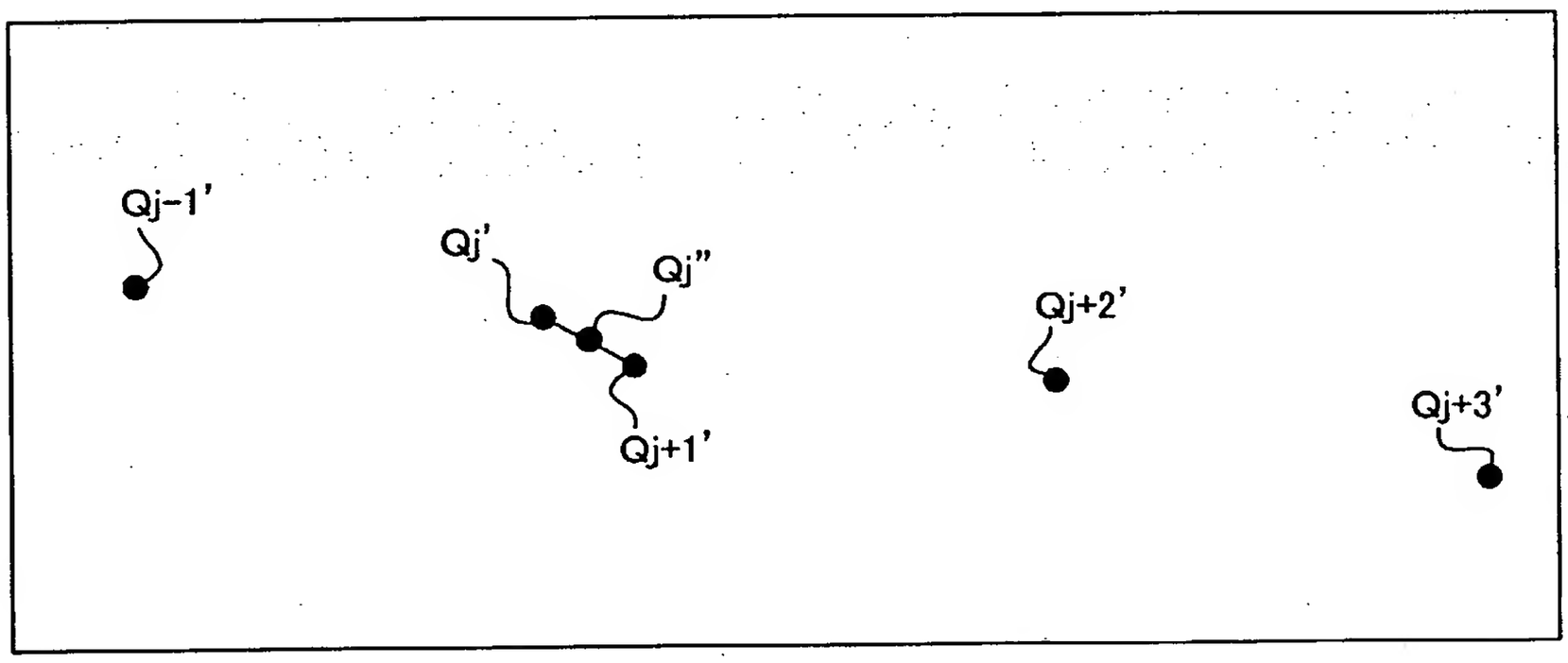


FIG. 9

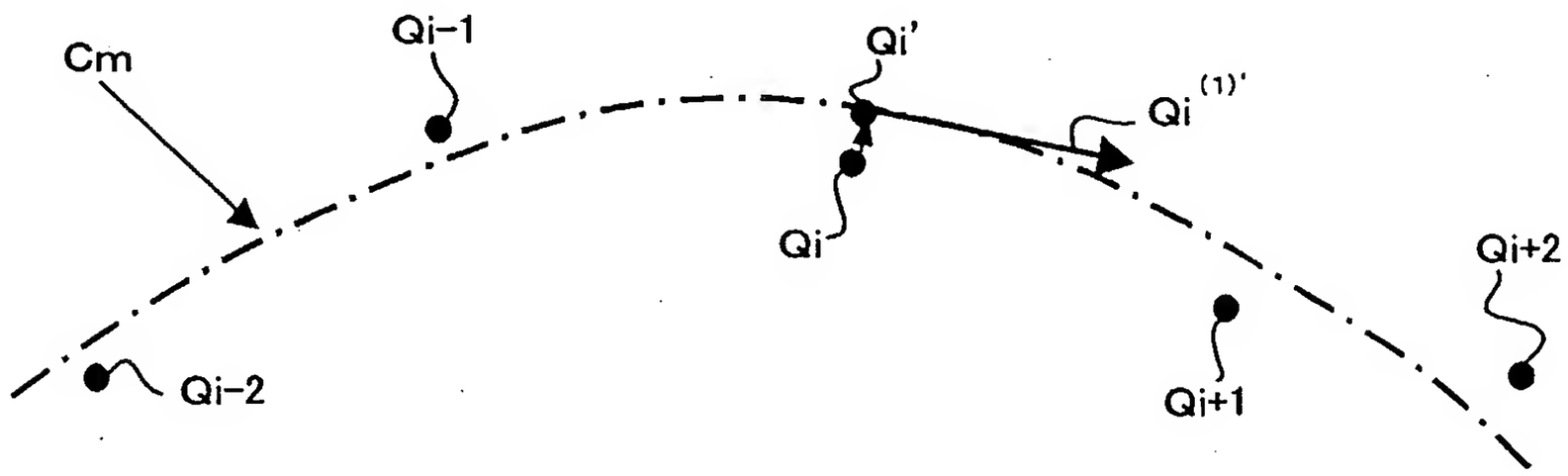


FIG.10

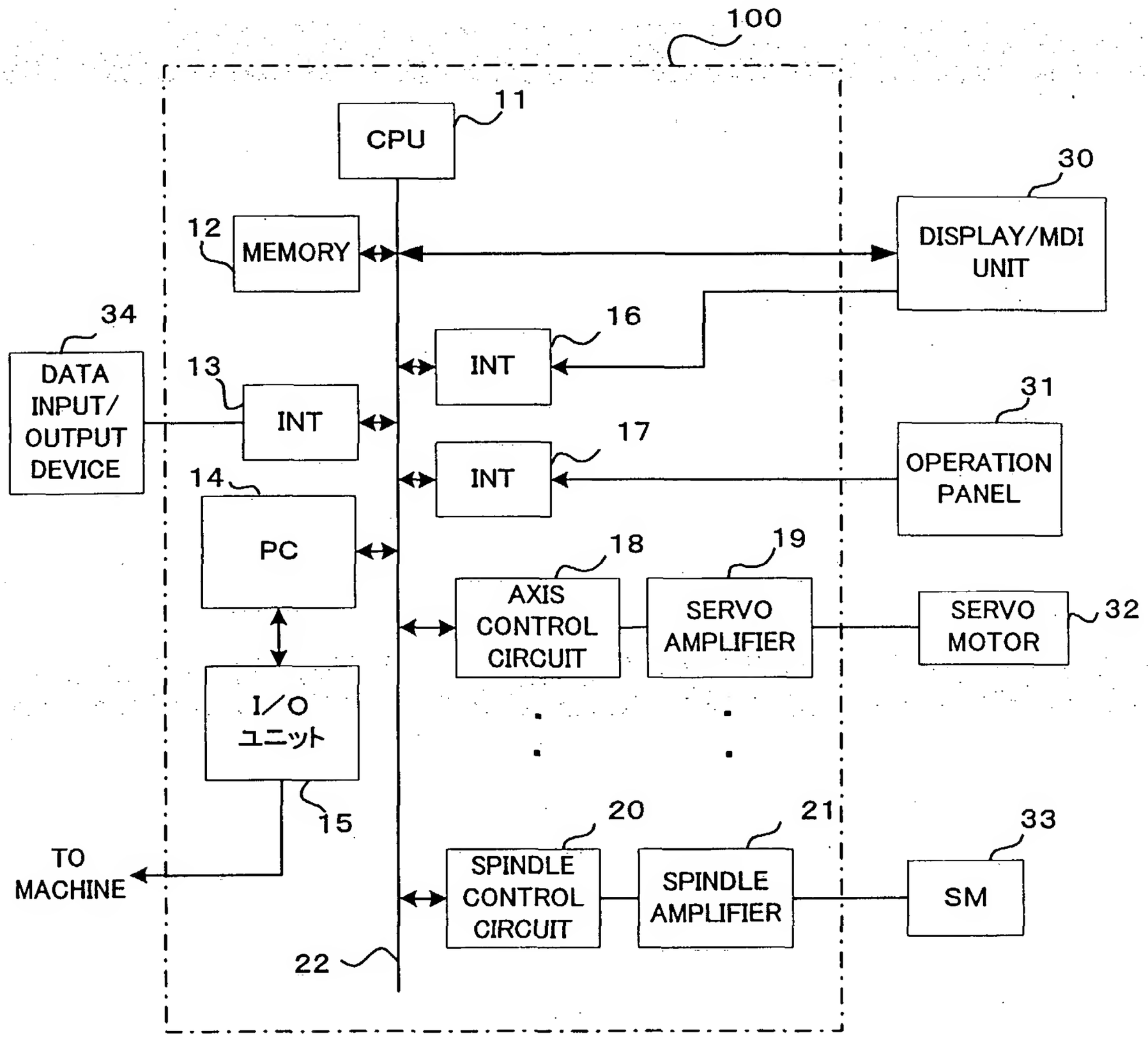


FIG.11

```
.....
.....
G06.3 X100.0 Y200.0 Z300.0 F10000; (START INTERPOLATION BY CREATTING SMOOTH CURVE)
X101.023 Y202.512 Z311.345 ;       (SEQUENCE OF COMMAND POINTS)
X103.234 Y203.876  Z315.123 ;
.....
.....
G06.9;                             (STOP INTERPOLATION BY CREATING SMOOTH CURVE)
.....
.....
```

FIG.12

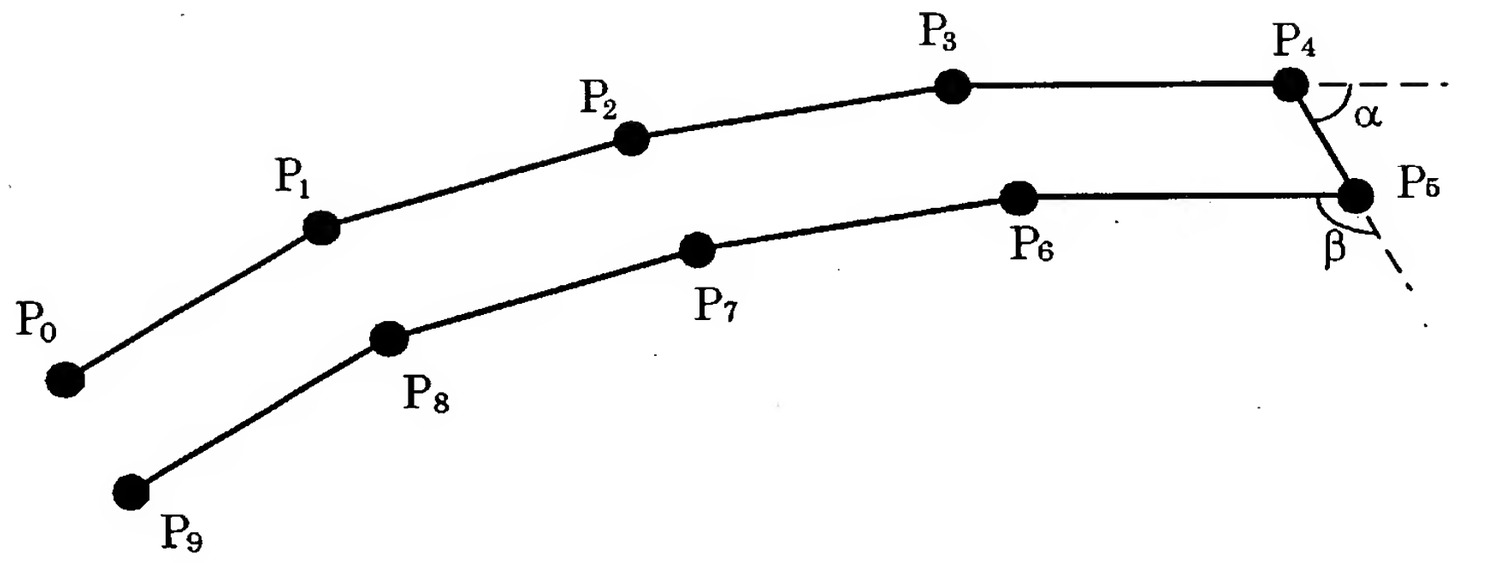


FIG.13

FIG.14

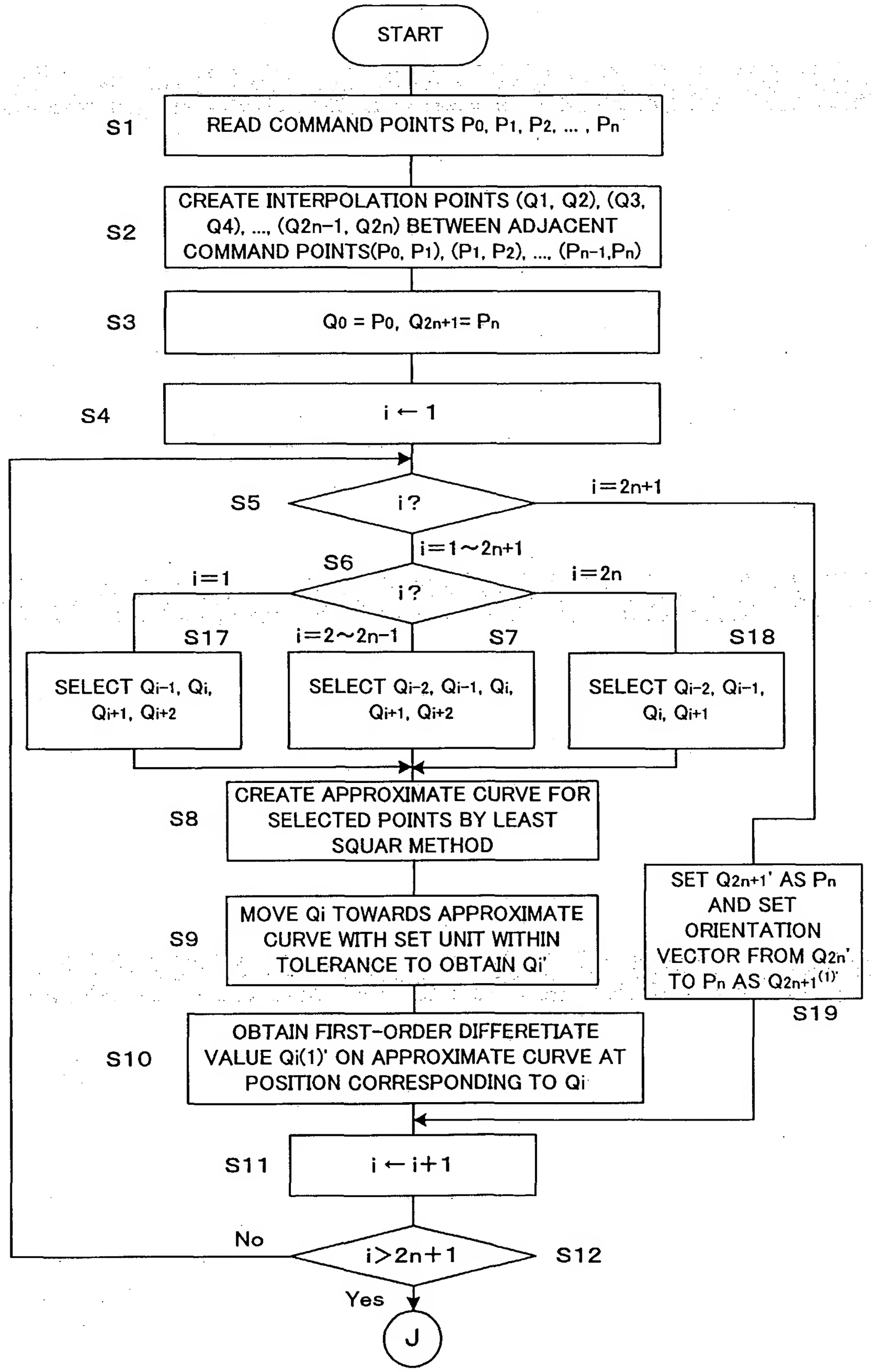

START
S1
READ COMMAND POINTS P0, P1, P2, ... , Pn
S2
CREATE INTERPOLATION POINTS (Q1, Q2), (Q3, Q4), ..., (Q2n−1, Q2n) BETWEEN ADJACENT COMMAND POINTS(P0, P1), (P1, P2), ..., (Pn−1,Pn)
S3
Q0 = P0, Q2n+1= Pn
S4
i ← 1
S5
i ?
i=2n+1
i=1~2n+1
S6
i ?
i=1
i=2n
S17
i=2~2n−1
S7
S18
SELECT Qi−1, Qi, Qi+1, Qi+2
SELECT Qi−2, Qi−1, Qi, Qi+1, Qi+2
SELECT Qi−2, Qi−1, Qi, Qi+1
S8
CREATE APPROXIMATE CURVE FOR SELECTED POINTS BY LEAST SQUAR METHOD
S9
MOVE Qi TOWARDS APPROXIMATE CURVE WITH SET UNIT WITHIN TOLERANCE TO OBTAIN Qi'
SET Q2n+1' AS Pn AND SET ORIENTATION VECTOR FROM Q2n' TO Pn AS Q2n+1(1)'
S19
S10
OBTAIN FIRST-ORDER DIFFERETIATE VALUE Qi(1)' ON APPROXIMATE CURVE AT POSITION CORRESPONDING TO Qi
S11
i ← i+1
No
i>2n+1
S12
Yes
J

FIG.15

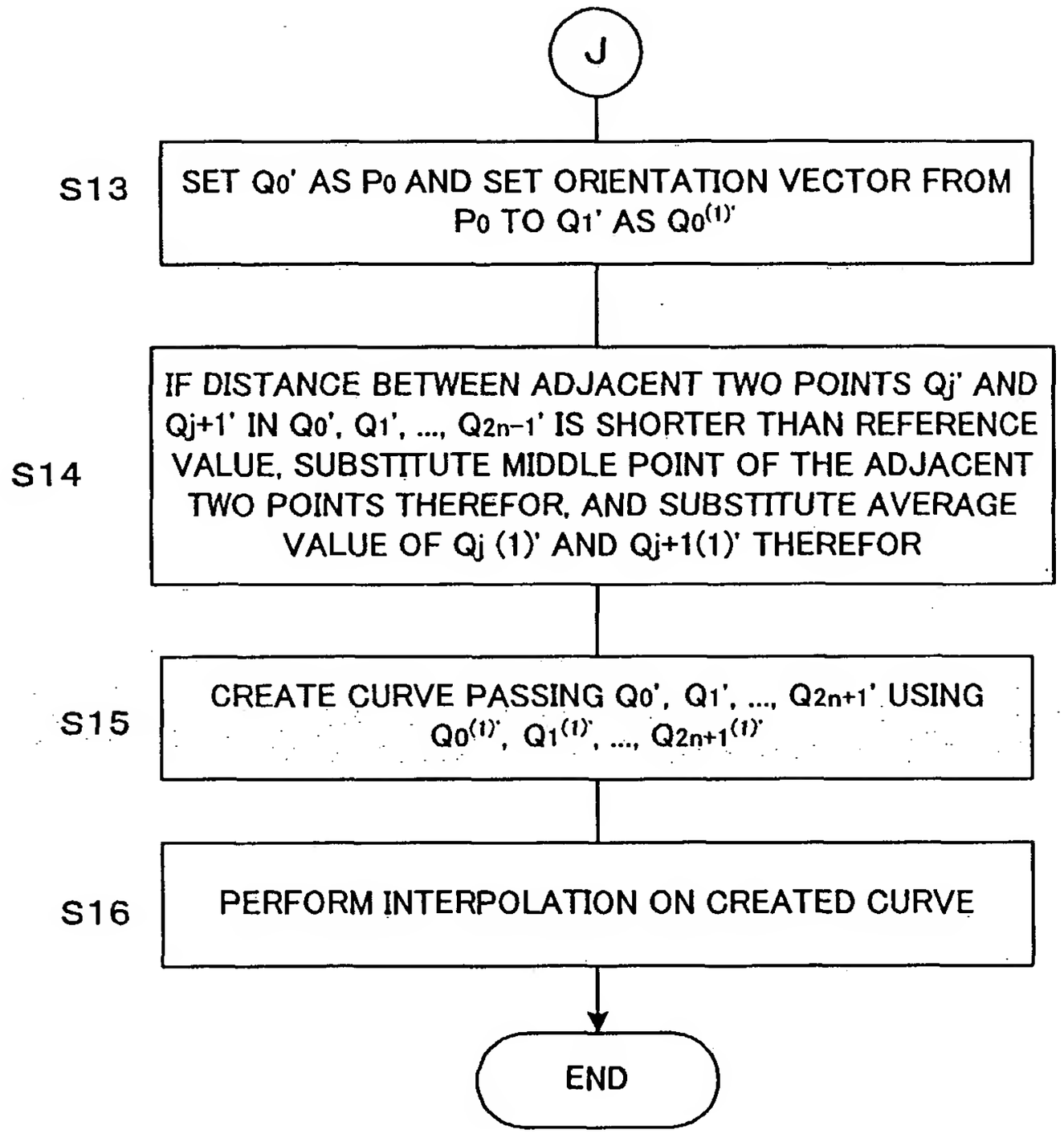

J
S13
SET Q0' AS P0 AND SET ORIENTATION VECTOR FROM P0 TO Q1' AS Q0(1)'
S14
IF DISTANCE BETWEEN ADJACENT TWO POINTS Qj' AND Qj+1' IN Q0', Q1', ..., Q2n-1' IS SHORTER THAN REFERENCE VALUE, SUBSTITUTE MIDDLE POINT OF THE ADJACENT TWO POINTS THEREFOR, AND SUBSTITUTE AVERAGE VALUE OF Qj (1)' AND Qj+1(1)' THEREFOR
S15
CREATE CURVE PASSING Q0', Q1', ..., Q2n+1' USING Q0(1)', Q1(1)', ..., Q2n+1(1)'
S16
PERFORM INTERPOLATION ON CREATED CURVE
END

FIG.16

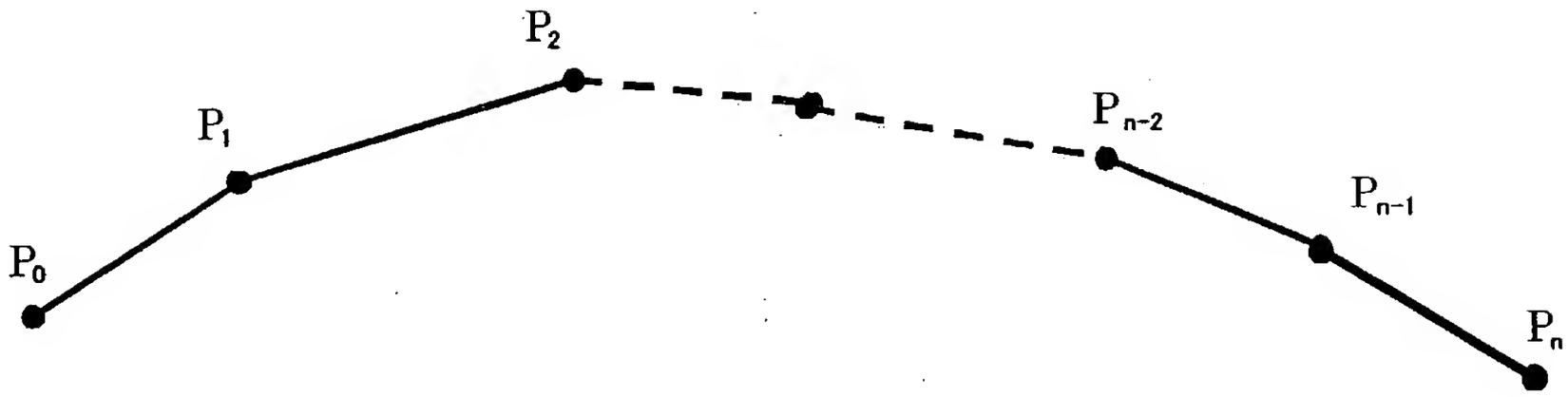


FIG.17

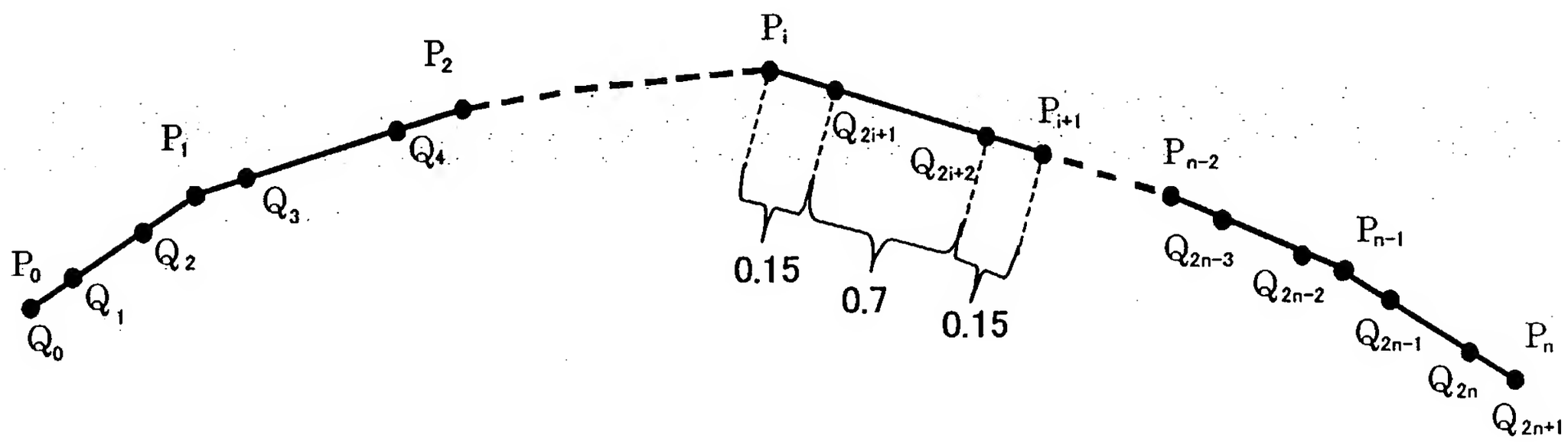


FIG.18

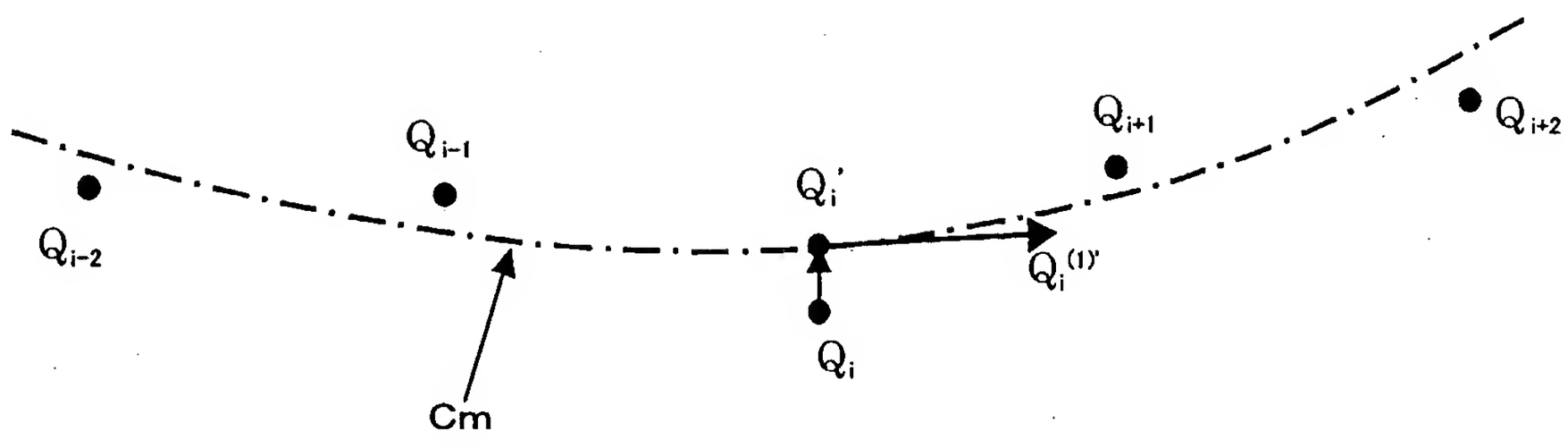


FIG.19

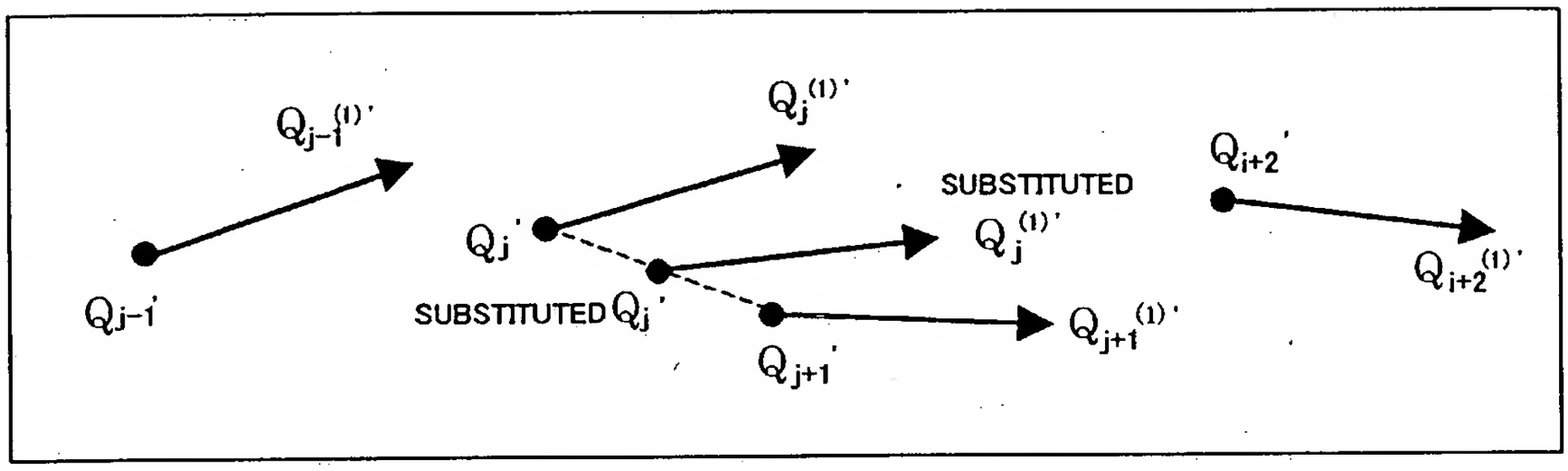
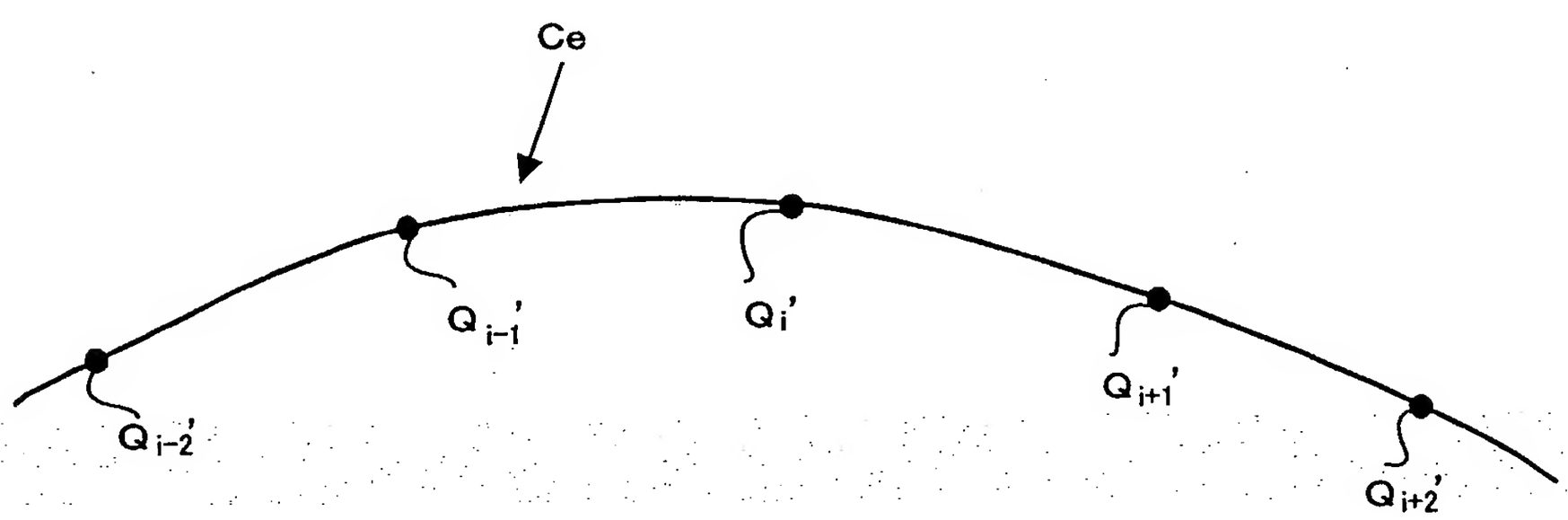

$Q_{j-1}^{(1)'}$
$Q_j^{(1)'}$
Q_{i+2}'
SUBSTITUTED
Q_j'
$Q_j^{(1)'}$
$Q_{i+2}^{(1)'}$
Q_{j-1}'
SUBSTITUTED Q_j'
Q_{j+1}'
$Q_{j+1}^{(1)'}$

FIG.20


Ce
Q_{i-1}'
Q_i'
Q_{i-2}'
Q_{i+1}'
Q_{i+2}'